

CLAIMS

WE CLAIM:

1. A biopsy needle assembly comprising:
an introducer shaft having a first and second end, and sized for percutaneous insertion into a patient along an insertion path to locate the first end at a biopsy site, the first end supporting an electrically conductive surface exposed to tissue and communicating by means of an insulating conductor to the second end to connect
5 with a cauterizing electrical source; and
a biopsy needle interfitting with the introducer shaft to be guided thereby, the biopsy needle including a sampling means for removal of a tissue sample before cauterization of the insertion path using the electrically conductive surface.
2. The biopsy needle assembly of claim 1 wherein the introducer shaft is a hollow tube and the biopsy needle slides within the hollow tube.
3. The biopsy needle assembly of claim 1 wherein the introducer shaft is electrically conductive and the electrically conductive surface is a first end of the introducer shaft.
4. The biopsy needle assembly of claim 3 wherein the insulated conductor is a middle portion of the introducer shaft having an outer insulating covering.
5. The biopsy needle assembly of claim 1 wherein the electrically conductive surface is a conductive stylet having a first end supported by the introducer shaft.
6. The biopsy needle assembly of claim 1 wherein the conductive stylet has a rounded tip.
7. The biopsy needle assembly of claim 5 wherein the introducer shaft is a hollow tube having an outer conductive covering and wherein the insulated conductor is provided by a portion of the conductive stylet fitting within the hollow tube.

8. The biopsy needle assembly of claim 5 wherein a shaft portion of the conductive stylet includes an outer insulating covering to provide the insulated conductor.

9. The biopsy needle assembly of claim 1 wherein the electrically conductive surface extends continuously by less than 2 cm as measured along the insertion path.

10. The biopsy needle assembly of claim 1 further including a temperature sensor positioned at the electrically conductive surface.

11. The biopsy needle assembly of claim 1 further including indicia on the introducer shaft near the first end to indicate to a user that the electrically conductive surface is about to be withdrawn through the skin.

12. The biopsy needle assembly of claim 1 further including an indicator providing guidance to a user as to a speed of withdrawal of the introducer shaft during cauterization.

13. The biopsy needle assembly of claim 12 wherein the indicator is selected from the group consisting of:

(a) a visual display providing an indication of at least one of temperature, electrical resistance, and electrical power at the electrically conductive surface;

5 (b) an audio signal providing an indication of at least one of temperature, electrical resistance, and electrical power at the electrically conductive surface;

(c) a visual display providing an indication of changes in a desired speed of retraction of the introducer needle based on at least one of temperature, electrical resistance and electrical power at the electrically conductive surface; and

10 (d) an audio signal providing an indication of changes in a desired speed of retraction of the introducer needle based on at least one of a temperature, electrical resistance and electrical power at the electrically conductive surface.

14. The biopsy needle assembly of claim 1 further including a retracting mechanism for automatically removing the introducer shaft according to a predetermined schedule.

15. The biopsy needle assembly of claim 13 wherein the retracting mechanism controls the schedule for retracting the introducer shaft according to at least one of a temperature, electrical resistance and electrical power at the electrically conductive surface.

16. A method of performing a biopsy comprising:

(a) inserting an introducer shaft percutaneously into a patient along an insertion path to locate a first end of the introducer shaft at a biopsy site, the first end supporting an electrically conductive surface exposed to tissue;

5 (b) guiding a biopsy needle with the introducer shaft to the biopsy site to obtain a tissue sample from the biopsy site;

(c) removing the biopsy sample from the patient; and

(d) connecting a cauterizing electrical source to the electrically conductive surface to cauterize tissue along the insertion path.

17. The method of claim 16 wherein the electrically conductive surface contacts tissue at only a portion of the insertion path and including the step of withdrawing the introducer shaft while the cauterizing electrical source is connected to the electrically conductive surface.

18. The method of claim 17 including the step of disconnecting the cauterizing electrical power from the electrically conductive surface prior to withdrawal of the electrically conductive surface through the skin.

19. The method of claim 16 including the step of measuring a parameter selected from the group consisting of temperature at the electrically conductive surface, resistance at the electrically conductive surface, and power deposited at the electrically conductive surface.

20. The method of claim 16 including the step of adjusting the retraction of the introducer needle during cauterization according to the measured parameter.